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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/823,951  
Filing Date: April 13, 2004  
Appellant(s): DALY, FRANCIS W.

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Michael S. Smith  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 2/11/08 appealing from the Office action  
mailed 6/17/05.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 5,974,360	Otsuka et al.	10-1999
US 5,615,118	Frank	3-1997
US 5,077, 558	Kuntman	12-1991

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3-34, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US Patent 5,974,360) in view of Frank (US Patent 5,615,118), further in view of Kuntman (US Patent 5,077, 558).

As to claims 1, 13, 20, 22, and 29, Otsuka et al. discloses accessing a second weather radar image generated after a first weather radar image and having a similar relationship as a first weather radar image; spatially and temporally mapping said first weather radar image onto said second weather radar image; comparing said first and second weather radar images; and forecasting information describing a weather condition represented by said first and second weather radar images (col. 1, lines 35-43 and Figs. 11, 12, and 13).

Otsuka et al. does not specifically disclose a method wherein weather radar images are generated by a weather radar resident on-board an aircraft.

Frank however, discloses a method wherein weather radar images are generated by a weather radar resident on-board an aircraft (col. 4, lines 5-21 and col.7, lines 12-22).

Otsuka et al. further indicates that the method of invention can be used in fields such as airplane operation and control (col. Lines 53-62).

The method of Frank involves airplane operation and control by providing pilots with tactical information, including information about the severity of threats, such that the pilot may divert or take other corrective action (col. 5, lines 19-23 and col. 12, lines 15-33).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Otsuka et al. in the manner of Frank in order to provide a pilot with a highly accurate forecast of a weather image so that the pilot can better choose appropriate action based on the forecast.

Frank further discloses an onboard flight path optimization system with an onboard control display unit that includes lights, and keys for displaying data and inserting commands related to different phases of flight (modes) (col. 8, lines 38-59).

Neither reference specifically teaches generating a warning reflecting a threat to safety as a function of a flight path and a phase of flight.

Kuntman, however, discloses an airborne wind-shear detection weather radar (See Title, Figs. 1 and 2, and col. 1, line 59-col. 2, line 18) and teaches that an aircraft which traverses a microburst along a path will experience an increased headwind at the forward edge and an increased tailwind at the trailing edge which can result in a

considerable loss of altitude at critical phases of flight. In the cited passages, Kuntman incorporates wind shear detection as it relates to differing phases of flight and further discloses the use of an alert related to wind shear probability detection regarding severity of a threat (col. 4, lines 27-30).

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to incorporate into the combination of Otsuka et al. and Frank (which is concerned with an enhanced onboard weather radar for use in an onboard aircraft flight path optimization system) with the ability to generate alerts for wind shear detection as they relate to critical phases of flight with respect to the position of an aircraft along a flight path, since taking phases of flight into consideration with respect to the position of an aircraft and to the position of turbulence along a flight path, allows a pilot the flexibility to take greater caution during a higher probability of threat to safety, while eliminating the need to change a course when a threat to safety is at a minimum.

As to claim 3, 4, and 30 Otsuka et al. further discloses wherein said second weather radar image further comprises a weather radar image generated at a time after generation of said first weather radar image and wherein said comparing said first and second weather radar images further comprises comparing said first and second weather radar images as a function of said time between generation of said weather radar images (col. 2, lines 47-54).

As to claims 5 and 23, Frank further discloses a method further comprising displaying said forecast information describing said weather condition (col. 12, lines 46-49).

As to claims 6 and 7, Frank further discloses a method wherein said forecast information further comprises information sufficiently advanced in time as to allow an appropriate response and information advanced over one of a selectable period of time and a fixed period of time (col.12, lines 56-67).

As to claims 8-12, 14, 15, 17-19, 21, 24-28, and 31-34 Frank further discloses a method wherein said forecast information further comprises information describing a track of said weather condition, accessing an intended flight path of the aircraft; comparing said forecast track of said weather condition with said flight path; and predicting a coincidence of said flight path and said weather condition, and generating one or more of a visual alert and an aural alert as a function of said coincidence of said flight path and said weather condition (col. 13, lines 7-15, col. 14, lines 18-29 and 55-59, and col. 15, lines 8-13 and 35-48).

As to claim 16 Otsuka et al. further discloses wherein: each of said first and second weather radar images further comprise respective first and second images representative of said weather condition; said comparing said first and second weather radar images further comprises comparing first and second states of said weather condition; and forecasting a future state of said weather condition (col. 3, lines 55-62 and col. 4, lines 31-32 and col. 2, lines 47-54).

As to claim 36, Otsuka et al. further discloses an electronic circuit further comprising a display coupled to said processor and adapted to receive each of said weather radar image signals representative of weather information contained in said weather radar return signals and said signal representative of said future weather

information, said display comprising a screen adapted to display each of said weather information contained in said weather radar return signals and said future weather information (col. 7, line 63- col. 8, line 37 and Figs. 1 and 2).

As to claim 37, Otsuka et al. further discloses an electronic circuit wherein said processor is further adapted to generate weather radar transmission signals; and further comprising: a transmitter coupled to receive said weather radar transmission signals from said processor and output said weather radar transmission signals to a radar antenna; and a receiver coupled to receive weather radar return signals from a radar antenna and output said received weather radar return signals to said processor (col. 7, line 63- col. 8, line 37 and Figs. 1 and 2).

As to claim 38, claim 38 is dependent on claim 29. Claim 29 is addressed above in a group including claims 1, 13, 20, and 22. Claim 38 is rejected in view of the combination of references as applicable and with the reasoning regarding that group. The subject matter of the specific limitation introduced in claim 38 regarding determining severity of threat to the safety of flight as a function of a comparison of future weather information was addressed with respect to the following:

"The method of Frank involves airplane operation and control by providing pilots with tactical information, including information about the severity of threats, such that the pilot may divert or take other corrective action (col. 5, lines 19-23 and col. 12, lines 15-33). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Otsuka et al. in the manner of Frank in order to provide a pilot with a highly accurate forecast of a weather image so that the pilot can better choose



appropriate action based on the forecast". The remaining citations and explanations addressed how phase of flight would be an obvious further incorporation into the addressed claimed subject matter for determining a severity of threat to the safety of flight.

#### **(10) Response to Argument**

Appellants' claimed invention is drawn to a specific type of onboard weather radar that incorporates comparing of two images to provide accurate weather radar information and combines this information with on onboard flight path optimization system to help make a decision about the best course for the flight of an aircraft when the radar provides information that turbulence exists in an intended or predicted flight path. The system indicates warnings regarding such path determination considerations by taking into account phase of flight information.

The Examiner relies on the reference to Otsuka to address the limitations regarding the specific type of weather radar.

The Examiner relies on Frank to teach a flight path optimization system to teach generating alerts with respect to an intended flight path by detecting potential turbulence from a generic onboard weather radar.

The Examiner relies on Kuntman to teach what he maintains in and of itself would have been known to one of ordinary skill in the art at the time of invention, namely that wind shear is path dependent and that wind shear has a different level of significance depending on the phase of flight of the aircraft.

Consistent throughout the prosecution of the instant application, the Examiner maintains that he relies on Kuntman only to specifically address this known understanding of the art.

The Examiner has not attempted to combine the specific wind shear system of Kuntman with the wind shear system of the combination of Otsuka's radar and Frank's path optimization system, but simply a teaching of what was known in the art when Kuntman invented his system.

The Appellant argues at length addressing an improper combination of the SYSTEM of Otsuka combined with Frank and the SYSTEM of Kuntman. The Examiner maintains that these points are moot as the Examiner relies on Kuntman to teach what was known to one of ordinary skill in the art regarding windshear paths and phase of flight. In other words, while the system of Kuntman may not have been known to one of ordinary skill in the art before the time of Kuntman's disclosure, the Examiner maintains that all teachings on which the Examiner relies would have been known. That is why the art related TEACHINGS from Kuntman and the specific SYSTEM of Kuntman are not the same thing.

With respect to the Appellant's assertion that the Examiner is using impermissible hindsight, the Examiner provides the following analysis, to be clear about how one of ordinary skill in the art could look at two different systems and incorporate a teaching, a facet, or an aspect of one of the systems and combine it with another.

Kuntman has a system that operates in different modes. There is a wind shear detection mode and there is a weather detection mode.

It should be noted here that Kuntman addresses both “**modes**” and “**phases**” which are two very different things in Kuntman. Frank uses the word “**mode**” to mean what Kuntman means when Kuntman uses the word “**phase**”.

Kuntman discloses that wind shear when detected leads to an alert provided by the detection device. Kuntman also discloses that this is important for critical phases of flight, yet not important enough for non-critical phases of flight that the wind shear detection mode is not even activated. The Examiner therefore believes that since an alert is generated only when wind shear is detected and only when the device is in wind shear detection mode, and since the device is only in detection mode during critical phases of flight, the Examiner believes that “generating a warning as a function of the phase of flight” is disclosed in the Kuntman reference.

Therefore from this point of view, one of ordinary skill in the art at the time of invention would understand that this aspect of windshear detection would be beneficial incorporated into the optimization system of Frank (as combined with Otsuka’s radar).

But the Appellant points out that the windshear detection mode of Kuntman is a separate mode from the weather detection mode of Kuntman, and since in the system of Kuntman only one mode functions at a time, the Appellant maintains that these operations are mutually exclusive.

Now, the Examiner can agree THAT IN THE SPECIFIC SYSTEM OF KUNTMAN, windshear detection and weather detection are mutually exclusive operations as they are SPECIFICALLY TIED TO MUTUALLY EXCLUSIVE MODES.

The system of Frank (and Otsuka), however, does not incorporate these mutually exclusive MODES. Therefore, in absence of these mutually exclusive modes in Otsuka and Frank, the Examiner maintains that the only way that the Appellant's arguments that the Examiner is using impermissible hindsight, or that Kuntman teaches away, or that the proposed modification cannot render the prior art unsatisfactory for its intended purpose, is relevant, let alone, persuasive, is if the Appellant is maintaining that the one of ordinary skill in the art in view of Kuntman with Frank (and Otsuka) who contemplates that it is possible to detect weather and windshear simultaneously, as Frank is specifically interested in weather detection and Kuntman is specifically addressing the benefits of wind shear detection, reads the part of Kuntman that says that Kuntman's system uses mutually exclusive modes for its own system and then concludes that Frank (and Otsuka) cannot possibly do both weather and windshear detection because if Kuntman can't (or chooses not to) do it simultaneous, then it obviously cannot be done in any system.

The Examiner is not persuaded by this position. Evidence of the Examiner's position that "weather" and "windshear" can have different meanings in different systems and different publications is actually provided in Frank (col. 12, lines 20-24). Frank teaches the performance of "weather detection" such as "wind shear". Therefore Frank clearly teaches that weather detection and wind shear detection are not mutually exclusive operations *per se* (Frank basically considers them the same thing), but rather implies that *with respect to Kuntman*, these are simply the names of two different

mutually exclusive modes that Kuntman and Kuntman alone (in the instant matter) chooses to call his modes (which *he designates* to perform mutually exclusively).

The Examiner therefore maintains for the reasons provide in the rejection and arguments above that one of ordinary skill in the art would not have been distracted from the obvious combination of aspects of the system and teachings of Kuntman and therefore would have found the combination of these aspects and teachings obvious to combine with Frank (and Otsuka) for the reasons provided above.

With respect to Appellant's arguments about that the Examiner's interpretation regarding "comparing" in the Advisory Action dated September 2, 2005, the Examiner maintains that the broadest reasonable interpretation of the claim language allow for a comparison to be performed without specifically stating what the mentioned feature is compared to. The claim language does not require the information and phase to be compared to each other. Before amendment, the warning was claimed to generated as a function of forecast information and phase of flight. The information and phase were not specifically tied together before amendment and reasonable interpretation was that the regardless of whether or not they were tied together, so long as the warning was generated as a function of each (alone or in combination), the language was met by the prior art. After amendment, absent the specific citation of comparing one "with" the other, the Examiner maintains it reasonable that the claim is still silent about their relationship, and that the only thing the amendment requires is that the forecast information is compared to something. The Examiner maintains that since the

rejections indicate that forecast information is compared to flight paths this at least anticipates the specific language of the amended claim.

The Examiner does not maintain his grounds of rejection for claim 35.

With respect to Appellant's arguments regarding the reply made to the Examiner's Answer to the initial Appeal Brief, the Examiner maintains the following with respect to the cited section of the evidence relied on above:

The rejection is based on a combination of references that the Examiner maintains would have been obvious to one of ordinary skill in the art.

One of ordinary skill in the art viewing the references would have found support for retrieved flight path consideration whether or not they found it in Kuntman because they would have found it in Frank.

One of ordinary skill in the art viewing the references would have found support in Kuntman that wind shear is a function of path and has different functional pertinence depending on phase of flight.

One of ordinary skill in the art viewing the references would have found support in Kuntman that wind shear detection during non-critical phases of flight is taught away ONLY for the specific SYSTEM MODE of Kuntman, not for what Kuntman teaches about the knowledge of the art in general.

The Examiner DOES NOT RELY on the system mode of Kuntman.

The Examiner relies on what one of ordinary skill in the art would have found obvious about windshear as it relates to flight paths and flight phases (both with respect

to the general knowledge of the art and the specific system disclosed. Again the examiner is relying on the knowledge of the art).

The Examiner maintains that once this path/phase knowledge is in view with the flight path system of Frank, the combination would have been obvious.

Furthermore, the Examiner maintains that Appellant's assertions (page 27, lines 10-12):

"In contrast, Appellant **teaches** wind shear detection during non-critical phases of flight. Also, Appellant **teaches** that "according to another aspect of the invention, ..."

is not pertinent to what the Appellant **claims**.

Lastly, the Examiner emphasizes that no embodiment has been incorporated into the claims themselves as the disclosure of the specification provides support only for a very general inclusion of phase of flight information. There are no specific examples to enable how a comparison is made with the flight path or what conditions are significant to threaten the safety of flight **UNLESS**, consistent with the Examiner's interpretation and treatment of claims for purposes of examination, one of ordinary skill in the art would (having the knowledge of one having ordinary skill) know *obviously* how to enable Appellant's invention.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 2857

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Anthony Gutierrez

Art Unit 2857

4/3/08

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